

Utility Patent Application

CONFIDENTIAL INFORMATION

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INTERCHANGEABLE BLADE CORDLESS ELECTRIC KNIFE

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BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to electric knives and, more particularly, to a cordless electric knife having interchangeability of the various blades.

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2. Description of the Related Art

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In recent history, one improvement on conventional knife designs, the electric knife, has revolutionized the field by providing a knife having a reciprocating blade driven by an electric motor. Greatly reducing the amount of

work required of the user, the electric knife turns monumental tasks such as turkey carving into a simple chore. Typically requiring the availability of an electric outlet, the use of these devices has been limited, however, to kitchens and other in-home applications.

5 A search of the prior art did not disclose any patents that read directly on the claims of the instant invention; however, the following references were considered related.

10 The following patents describe the design and function of a handle for an electric knife: U.S. Patent no. **4,702,006** issued in the name of *McCullough*; U.S. Patent no. **D 298,601** issued in the name of *Tsuji*; and, U.S. Patent no. **D 286,491** issued in the name of *Levin*.

15 The following patents disclose various ornamental designs of cordless electric knife handles: U.S. Patent no. **D 312,192** issued in the name of *Barrault*; U.S. Patent no. **D 306,813** issued in the name of *Naft et al.*; and U.S. Patent no. **D 286,969** issued in the name of *McCloskey*.

U.S. Patent no. **5,230,154** issued in the name of *Decker et al.* describes a modular power-driven rotary knife able to accommodate different tasks.

U.S. Patent no. **4,891,884** issued in the name of *Torbet* discloses a cordless hand-held automatic bladed kitchen appliance.

U.S. Patent no. D 207,767 issued in the name of *Bremshay et al.* describes an ornamental design for a power-operated carving knife.

While some features of providing an electric knife having a reciprocating blade that is driven by a rechargeable battery driven power supply adjustable may be incorporated into this invention as well as in other related references, other elements in combination are different enough as to make the combination distinguished over these related references.

SUMMARY OF THE INVENTION

Therefore, it is an object of the invention to indicate a device of the type disclosed above which avoids the disadvantages inherent in the state of the art. In particular, it is an object of the present invention to provide an improved electric knife having interchangeability of the various blades, in combination with the in-handle storage feature to provide safety as well as convenience.

Briefly described according to one embodiment of the present invention, an electric knife having a reciprocating blade that is driven by a rechargeable battery driven power supply. This lightweight, portable design, opens the doors to a variety of uses that are otherwise impossible with conventional cord powered models. Especially handy for fishermen and other outdoor users, the

knife includes a variety of use specific blades such as filleting blades, utility blades and carving blades that allow the user to perform a multitude of tasks with ease and precision.

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BRIEF DESCRIPTION OF THE DRAWINGS

The advantages and features of the present invention will become better understood with reference to the following more detailed description and claims taken in conjunction with the accompanying drawings, in which like elements are identified with like symbols, and in which:

10 FIG. 1 is an elevated front perspective view of an Interchangeable Blade Cordless Electric Knife, according to the preferred embodiment of the present invention;

15 FIG. 2 is a side view of an Interchangeable Blade Cordless Electric Knife, according to the preferred embodiment of the present invention;

FIG. 3 is a front view of an Interchangeable Blade Cordless Electric Knife, according to the preferred embodiment of the present invention;

FIG. 4 is a bottom view of an Interchangeable Blade Cordless Electric Knife, according to the preferred embodiment of the present invention;

FIG. 5 is a rear view of an Interchangeable Blade Cordless Electric Knife,

according to the preferred embodiment of the present invention;

FIG. 6 is a top view of an Interchangeable Blade Cordless Electric Knife,
according to the preferred embodiment of the present invention;

FIG. 7 is a top cutaway view of an Interchangeable Blade Cordless
Electric Knife taken along line ~~IV-IV~~ ~~VII - V II~~ of FIG. 2, according to the preferred
embodiment of the present invention;

FIG. 8 is an elevated rear exploded perspective view of an
Interchangeable Blade Cordless Electric Knife, according to the preferred
embodiment of the present invention; and

FIG. 9 is a side view of the various cutting blades for use with an
Interchangeable Blade Cordless Electric Knife, according to the preferred
embodiment of the present invention.

LIST OF REFERENCE NUMBERS

15	10	Interchangeable Blade Cordless Electric Knife	18a	Knife Release Linkage
	11	Handle	19	Blade Compartment Cover
	15	Motorized Head	19a	Blade Compartment
	15a	Motor	19b	Blade Compartment Latch
20	15b	Gear Box	20	Battery Compartment Cover
	16	Blade Receiving Slot/Locking Mechanism	20a	Battery Compartment
	17	Power Switch	20b	Battery Compartment Latch
	18	Knife Release Button	21	Battery
			21a	<i>Operating</i> First Battery Contact
			21b	<i>Operating</i> Second Battery Contact

21c Power Ground Wire
21d Switched Power Wire

22 Blades

DESCRIPTION OF THE PREFERRED EMBODIMENTS

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1. Detailed Description of the Figures

Referring now to FIG. 1, an Interchangeable Blade Cordless Electric Knife 10 shown, according to the present invention, wherein a plurality of interchangeable blades are disposed within the handle for storage. Device 10 is for use by the sportsman in the field for cutting and serrating fish, fowl, and game. A rechargeable battery is also disposed within the handle for supplying power to a small electric motor. A sportsman can easily carry the device in their jacket, pants pocket, vest, or conveniently carry it in a tackle box.

Referring now to FIG. 2, shown is a side view of an Interchangeable Blade Cordless Electric Knife 10 displaying the location of the important features of the device. Located at the front of the device is a motorized head 15 for providing a base for the Blade Receiving Slot/Locking Mechanism 16 is located for receiving blade 22 (not shown). Motorized head 15 is connected to a handle 11 which also serves as the housing for storing the blades 22 and battery 21 (not shown). Handle 11 is generally an elongated hollow cylinder flared outward at one end and having a sidewall at that end. Handle 11 and the housing for motorized

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head 15 may be constructed from plastic or metal. The other end is connected to motorized head 15 as described above. Located directly behind motorized head 15 on the top of the exterior sidewall of handle 11 is a power switch 17 for controlling the flow of electrical current to motor 15a (not shown). Located directly behind motorized head 15 on the bottom of the exterior sidewall of handle 11 is a knife blade release button 18 for releasing a knife blade 22 from Blade Receiving Slot/Locking Mechanism 16.

FIG. 3 shows a front view of an Interchangeable Blade Cordless Electric Knife 10 where blades 22 may be inserted into Blade Receiving Slot/Locking Mechanism 16. Blade Receiving Slot/Locking Mechanism 16 is typical of such mechanisms commonly found in electric kitchen knives. Such mechanisms will securely grip the knife blades until released by pushing a button.

FIG. 4 is a bottom view of an Interchangeable Blade Cordless Electric Knife 10, showing a detailed view of the location of knife blade release button 18. FIG. 5 shows a rear view of device 10 and the location of battery compartment cover 20 and blade compartment cover 19. Battery compartment cover 20 is held shut by a spring loaded battery compartment latch 20b. Likewise, blade compartment cover 19 is held shut by a spring loaded blade compartment cover latch 19b. FIG. 6 shows a top view of device 10 showing the location of power

switch 17 on the top of the exterior sidewall of handle 11.

Referring now to FIG. 7, a cutaway top view of device 10 is shown taken along line ~~VII-VII~~ of FIG. 2 along the elongated longitudinal axis of handle 11. Gear Box 15b is disposed within motorized head 15. Gear Box 15b is driven by electric motor 15a and converts the rotational energy of electric motor 15a to a reciprocating back and forth motion in the Blade Receiving Slot/Locking Mechanism 16 for driving the cutting blades 22. Blade Receiving Slot/Locking Mechanism 16 is located in the center of motorized head 15. A linkage 18a connects Blade Receiving Slot/Locking Mechanism 16 to blade release button 18. Electric motor is supplied power via switched power wire 21d linked via power switch 17 from the positive battery contact 21^a. The negative pole of electric motor 15a is connected to the negative battery contact 21b via ground wire 21c. Positive battery contact 21^a is disposed within battery compartment 21a located on the interior of handle 11 on the inside of battery compartment cover 20. The negative battery contact 21b is located to the front end of battery compartment 21a. Battery 21 is placed within battery compartment 21a secured by battery compartment cover 20. Battery 21 is a rechargeable type battery that is typical of modern rechargeable tools and devices being an elongated cylinder with a positive pole on one end and a negative pole on the other. Such batteries

are typically charged on a battery charger that sits on a counter type and is plugged into conventional household power outlets. Located above battery compartment ²⁰_{21a} is cutting blade compartment 19a, an elongated cavity within handle 11, for storing a plurality of cutting blades that can be inserted into Blade ²¹₁₆.
5 Receiving Slot/Locking Mechanism 16.

FIG. 8 shows an elevated exploded rear view of a device 10 showing how battery 21 is inserted into battery compartment 20a. Battery compartment cover 20 is shown in the open configuration. Battery compartment cover latch 20b is seen on the inner surface of cover 20. Battery compartment cover latch 20b is spring biased so that when closed it engages a notch in the sidewall of handle 11. Blade compartment cover 19 is also seen in the open configuration with blade compartment latch 19b seen on the inner surface. Blade compartment latch 19b is spring loaded and is designed to engage a notch in the sidewall of handle 11 when blade compartment cover 19 is in the closed configuration. A 15 plurality of blades 22 can also be seen outside of handle 11.

Inv. a Finally, a plurality of interchangeable blades 22 are shown, including a ^a 7 1/2" stainless steel fillet blade, a 7 1/2" carving blade, and a small stainless steel knife. These blades are given as examples only and no way imply any limitation of the blades that could be used with device 10. Blades 22 are a pair of

stainless steel blades placed next to each other and connected via a tab on one blades and a slot on the other. In this fashion, the blades are free to slide against each other providing a cutting motion when the power is turned on.

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2. Operation of the Preferred Embodiment

To use the present invention, one inserts a pair of blades into the slot in the front of the motorized head. The slot is designed to lock the blades into the motorized and mechanically connect the blades to the electric motor. A plurality of blades of different shape are stored in the interior of the handle. A small door with a locking tab will allow a user access the blades. A power switch on the handle energizes the motor with electrical power from the battery. One simply pushes the power switch to energize the device. The device can be used to cut or fillet fish, fowl, or game. When one is done using the device, the power is switched off and the blades removed from the motorized head by pushing a release button on the bottom of the handle. The blades can now be cleaned and stored with the other blades. The battery may also be removed and recharged by putting it in the included counter top recharger powered by household current. The battery is accessed by opening a small door with a locking tab covering the battery compartment.

As designed, a device embodying the teachings of the present invention is easily applied. The foregoing description is included to illustrate the operation of the preferred embodiment and is not meant to limit the scope of the invention. As one can envision, an individual skilled in the relevant art, in conjunction with the present teachings, would be capable of incorporating many minor modifications that are anticipated within this disclosure. Therefore, the scope of the invention is to be broadly limited only by the following claims.